



Chancellor's Honors Program

The Impact of Sales and Operations Planning Implementation on Supply Chain and Financial Metrics

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Table of Contents

1. Introduction to S&OP.....	Page 3
Scope of the Problem.....	Page 4
2. Literary Review.....	Page 5
Old View.....	Page 5
Modern S&OP.....	Page 5
Future of S&OP.....	Page 6
3. Methodology.....	Page 8
4. Case Analysis.....	Page 11
Company #1 – Newell-Rubbermaid.....	Page 11
Company #2 – Heinz.....	Page 12
Company #3 – Weyerhaeuser.....	Page 14
Company #4 – Whirlpool.....	Page 15
Cross-Case Analysis.....	Page 17
5. Appendix.....	Page 19
6. Works Cited.....	Page 22

Introduction to Sales and Operations Planning

What is Sales and Operations Planning?

Sales and Operations Planning, otherwise known as S&OP in industry, is a complex practice intended to align the goals of a company's internal supply chain, finance, and sales organizations.

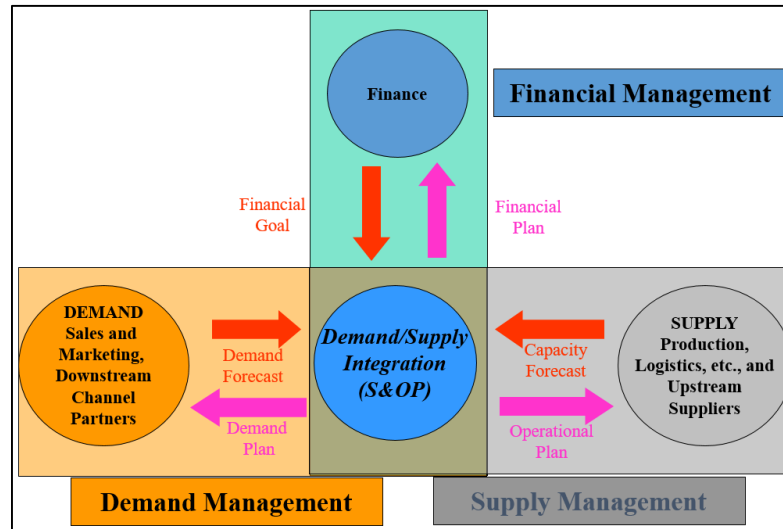


Chart: Dr. Paul Dittman – University of Tennessee

This process begins with the demand side of the organization generating a forecast and sharing it with the supply sides. Simultaneously the finance and supply organizations each create plans for the period's financial goals and capacity constraints. These three core inputs along with qualitative feedback will be discussed and worked on by representatives and leadership from the three organizations until a mutually agreed-upon vision is identified for the company. This singular plan must take into account and balance the three input factors in order to best meet the goals of the company as a whole, considering the internal and external environments. This is an intentionally simple overview of S&OP as this study is not intended to be an instructional guide for using or implementing the process, but rather an analysis of its effectiveness.

Scope of the Problem

Many consultants and companies have touted the benefits of S&OP and how it adds value to their supply chain and sales organizations. However, much of this evidence is anecdotal, or is cited as improvement on a company's internal metrics. The goal of this research is to determine the impact that S&OP implementation has on a company's public financial and supply chain metrics. By using public records to determine when the company implemented S&OP, and analyzing several key performance metrics for the five year period pre-implementation and post-implementation of S&OP, this study will be able to objectively determine the impact, if any, that the process has on a company's results. Understanding the impact and the magnitude of effect will enable managers to make better decisions when deciding if and how to implement S&OP in their own organizations.

Literature Review

S&OP as an Emerging Science

In the 1980's Sales and Operations planning emerged as a way for manufacturers to have a unified production schedule. The process was largely initiated by the manufacturing or materials planning organization and had difficulty convincing sales to become involved (Wallace & Stahl). This was due to a misalignment of both incentives and objectives. With operations seen as a cost center it was their responsibility to keep costs low on the manufacturing line and in inventory levels. On the other hand, the sales organization was motivated by quotas and responsible for selling as much as possible. This incentivizes sales to demand stockpiles of inventory to prohibit any chance of a missed sale and accommodate any customer request with no time barrier. This classic head-butting between the sales and operations side of companies hurt their bottom line and encouraged decision-making at the functional level, rather than the overall business level that would drive economic profit and shareholder value. This was the problem that early Sales and Operations Planning sought to address.

Modern S&OP

Today the process of Sales and Operations Planning has had its benefits repeatedly extolled in literature and is widely considered to improve corporate performance. It involves almost every member of the business: operations, sales, marketing, distribution, manufacturing, finance, and executive teams. Modern S&OP has even adopted different names in an attempt to capture the full-breadth and new realities, being called Demand-Supply Integration or Integrated Business Planning (Moon). The practice has become so highly regarded that consulting firms specialize entirely on how to best practice and implement S&OP. One major player in that market is the consulting firm Oliver Wight, who in their online publications and books extol the

benefits of S&OP. Their claims are backed up by case studies and internal interviews that they have published.

Recent academic research also provides insight to the benefits of integrating demand with supply, such as a case study done by professors at the University of Tennessee that through interviews with two large companies saw increases in financial performance and customer service (Tate et al. 2015). According to the book “The New Supply Chain Agenda” effective S&OP processes drive economic profit and increase shareholder value. This is due to avoiding the damaging effects to a business that occur when demand and supply do not match. As the authors write, “When demand exceeds supply, shortages result, expediting costs escalate, customers are often left unhappy, and revenue is left un-realized. When supply exceeds demand, production assets are under-utilized, inventories grow, and costs escalate” (Slone, Dittman, Mentzer). These are just a few of the ways that a mismatch can hurt business.

Cumulatively, the body of research above, in both academic and professional settings, it can be determined that all of the popular research done regarding Sales and Operations Planning that has been performed to date regards the process positively. Citing such varied benefits as increased sales, profit, customer service, and even internal collaboration it is a process that can benefit not just manufacturers, but retailers and even service-oriented businesses.

Future of S&OP

In the future this process will continue to develop relevance in smaller firms, and more globally disparate operations that may have not yet been exposed to it. With new information and technology systems continually improving access to accurate data decisions can be made across organizations in real time that would have been impossible or mere guesses in the S&OP of the

1980's. S&OP excellence is recognized as a competitive advantage today, and will be a necessity for business within the next decade.

Methodology

1. Select Companies

Selecting the companies to use in this case analysis is the first and one of the most important steps. The first criterion was that the company must be large, with annual revenues in excess of five billion USD, and have publicly available financial information. The second criterion was that their year of implementation would have to be identifiable and within the past 15 years to ensure that the methods, data, and similarities would be consistent. In the same vein, the implementation would have to be completed more than five years prior to 2015, so that enough data would be available post-implementation to find meaningful patterns, if they exist. The selection of companies would also range across industries to gain a broader business perspective of the process.

2. Identify Performance Metrics

These results to be analyzed in this case study include:

- I. Revenue
- II. Net Income
- III. Cash Flows
- IV. Inventory Turns
- V. Return on Assets

These metrics were chosen because they represent the areas where S&OP has been designed to have the most impact. The process is intended to increase revenue by enabling the supply chain to match up with sales and marketing activities. S&OP should also increase net income by reducing costs across the supply chain and sales organization by removing non-value add activities. Cash flows should increase with less capital tied up by inefficient process in

manufacturing, distribution, and inventory. Inventory turns should also increase with a successful implementation because the company can focus their efforts on the top performing products and produce to demand more effectively. Finally, return on assets should also increase because the supply chain will operate more efficiently when synced with sales.

3. Gather Data

After identifying what information was needed from all companies involved in the case study, accurate data needed to be gathered from reliable sources. The data that was gathered included sources for the implementation dates of S&OP for each company, the five metrics listed above in annual periods for the five years prior and five years post-implementation (Revenue, Net Income, Cash Flows, Inventory Turns, and Return on Assets), and other relevant financial information.

This information was sourced from industry journals, publications by consulting agencies, literature, and business periodicals. The vast majority of the financial data was sourced from Bloomberg's financial analysis, liquidity, and ratio analysis functions for each of the four U.S. Equity's involved. Additional data on factors that would impact financial performance was sourced from each company's annual reports. These additional factors included mergers, acquisitions, or, depending on the time range, financial crisis.

4. Perform Financial and Business Analysis

The goal in the financial analysis will be to take the raw annual data of the six metrics above and analyze them individually, then across the four companies for trends, correlation, and abnormalities. This will be done using averages, the compound annual growth rate, variance, and standard deviation. Each of those calculations will be performed for the five year period prior to S&OP implementation, the five year period post-S&OP implementation, and the entire ten year

period. After determining what patterns exist at the company level, these results will be reported and compared across the individual case studies for correlation in the cross-case analysis. This will be integrated with a business analysis that includes an explanation of any external factors that could have also contributed to changes besides S&OP-implementation.

5. Compare Cases

Now that the financial and business analysis of each of the four companies has been completed, they can be compared. This comparison will look for trends, similarities, and differences between each of the company's circumstances and results. By finding cross-over a broader lesson can be learned that could apply to other companies considering an S&OP implementation in the future.

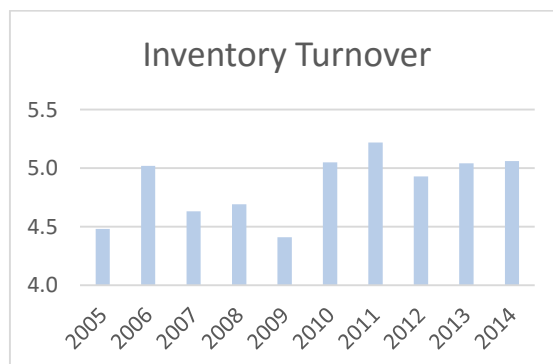
Company Analysis

Company #1

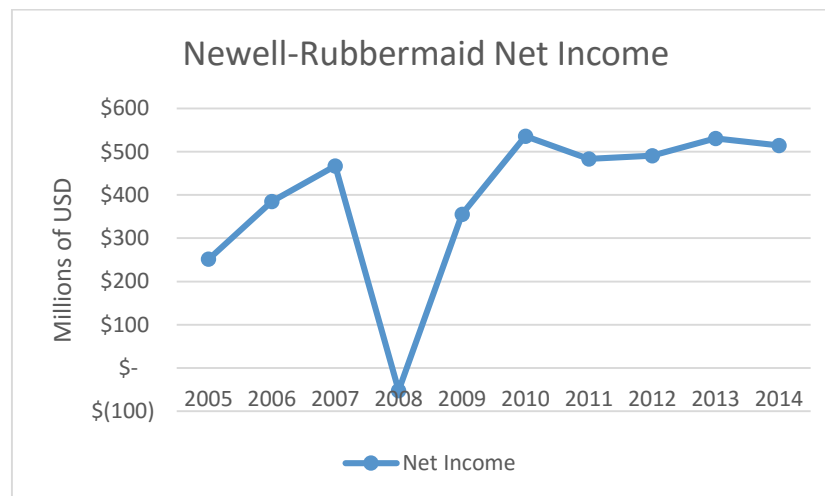


Implementation Timeline: According to an interview with four Newell-Rubbermaid executives published by Consumer Goods Technology, the company first realized a need for Sales and Operations planning in 2007 while experiencing a multitude of business performance issues (Ackerman). They then embarked on a long-term project to optimize and standardize their S&OP processes across all 13 global business units. This came to completion in 2010 with a revitalized process that claimed reduced inventory levels, increased availability, and benefits on additional internal measures.

Results: The article specifically cites inventory turnover as increasing by 26% in the 18-months of the initiative. Looking at data collected from Bloomberg we can attempt to validate that claim and examine several other key metrics that were identified through research as benefiting from S&OP. In 2007 Newell-Rubbermaid had inventory turnover of 4.6 according to Bloomberg. In 2008 that increased slightly to 4.7 and then dropped to 4.4 the next year. So at first brush it may seem as though this improvement did not succeed. However, looking at their overall timeline, by the end of our time horizon inventory turns had improved to 5.1



Newell-Rubbermaid also faced a challenge in the middle of their implementation period that two other cases faced with a developed S&OP process. With the “Great Recession” beginning in late 2008, business was greatly dampened. In 2009 Newell-Rubbermaid made the “decision to exit \$500 million in sales” of commoditized goods due to the financial crisis which hurt their top line growth for many years to come, but ultimately helped save their bottom line with net incomes improving above pre-recession levels (Newell-Rubbermaid).



S&OP has bettered this organization in a concrete way. More robust planning systems would have helped Newell-Rubbermaid better prepare for uncertainties and reduced the negative impact of excess inventory and production capacity that occurred during and after the recession.

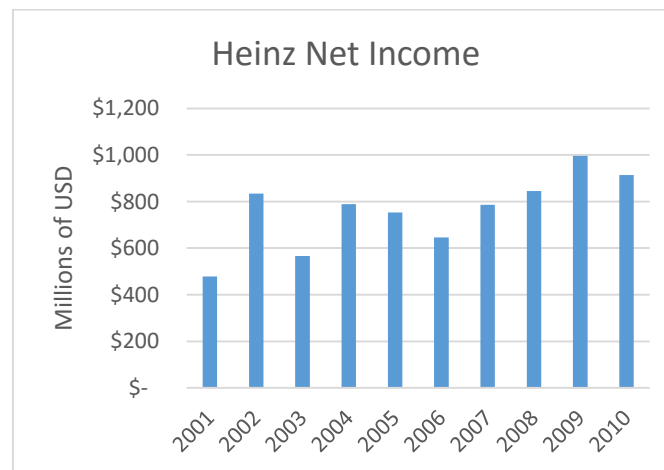
Company #2



Implementation Timeline: When Heinz implemented S&OP it was intended to be a short range, continuous improvement process for Europe according to consulting company Oliver Wight. However, it rapidly grew into a global standard as the effects were realized. It spread across four

continents and achieved full implementation in 15 months, culminating in June of 2006. In Oliver Wight's case study, they claimed the completion of the project brought enabled returns of 5% direct to the bottom line as well reducing safety stock and therefore inventory of key products (Oliver Wight EAME 13).

Results: Examining Heinz's financials from 2001-2010, before they were acquired by Berkshire Hathaway in 2014, revenues are stable over the first five years, then grow steadily from 2006 on. As mentioned in the case study Heinz saw a 5% direct improvement to their bottom line. From the annual data in Bloomberg from 2005 to 2006 Heinz actually realized declining net income by -14.2%. This could fit with the narrative if other business factors such as increased costs affected Heinz during that time. However, going forward Heinz's net income reached all-time highs of over \$900 million.



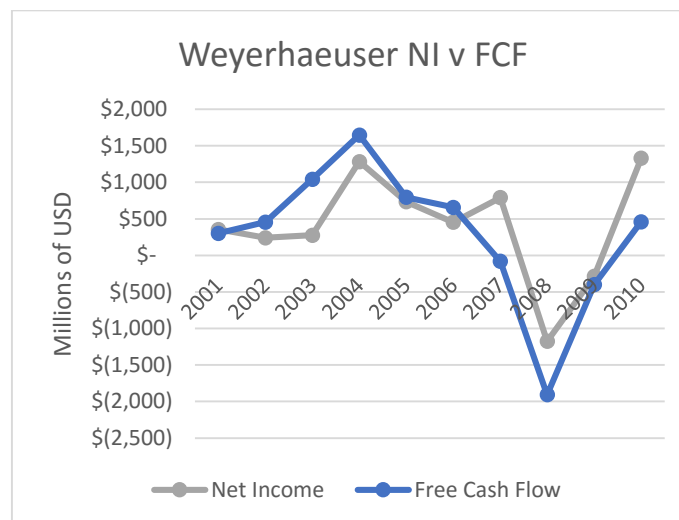
What we see from the firm's other financial metrics procured from Bloomberg is steady increase in almost all other factors. Revenues grew annually to reach over \$10 billion, inventory turns sped up and return on assets had lower variance as well as a higher average over the five years post-implementation, easily seen by referencing exhibit A and exhibit C in the appendix.

Company #3



Implementation Timeline: As Weyerhaeuser looked for ways to improve their Supply Chain in 2004, they “focused on a holistic, integrated supply chain, rather than one focused on individual plants” according to an Oliver Wight case study. This business-wide improvement plan began in their cellulose fibers business unit and reached completion of S&OP implementation in May 2006. Realized benefits included more accurate inventory records and increased accuracy of sales plans and production master schedules (Oliver Wight Americas).

Results: The Oliver Wight publication detailing Weyerhaeuser’s implementation lists few specific areas that the company aimed to improve before starting S&OP. However, from Bloomberg’s company-wide financial data it is difficult to determine what had the greatest effect on Weyerhaeuser’s performance. From 2004 on Weyerhaeuser divested over nine billion USD worth of operations by doing away with some of their building products. This contributed to their revenue falling from 22 billion to just over 10 billion in two years. The financial crisis also hit Weyerhaeuser particularly hard, causing them to realize net losses of almost two billion in 2008.



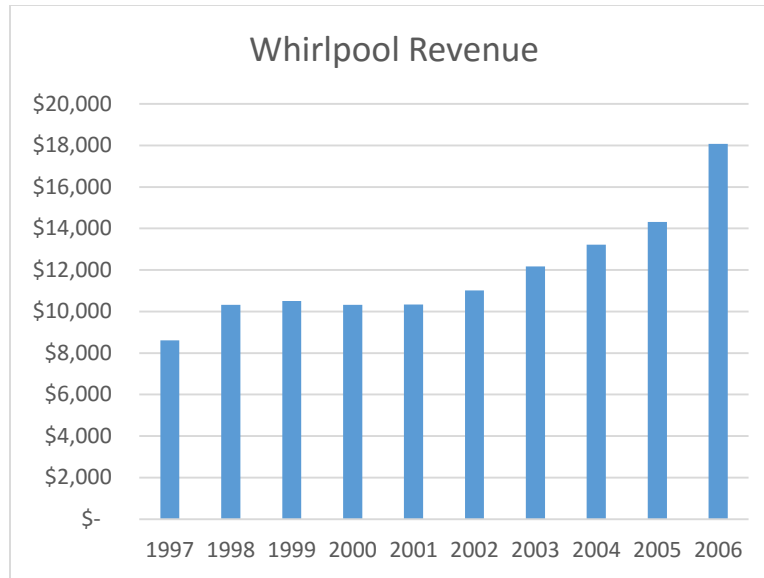
However, for the purposes of this study we can examine relative metrics including inventory turns and return on assets to explain some of the changes in scope of their business. Over the ten year period studied Weyerhaeuser produced a 1.5% compound annual growth rate in their return on assets, which began at extremely low 1.9% and grew to 8.9% by 2010. This reflects significant overhaul in the way the company does business, by altering their balance sheet to be much more productive. However, even before the recession hit in 2008, inventory turnover dropped throughout 2007 to pre-S&OP implementation levels. This did not recover until 2010 once the business had stabilized and begun growing again. Overall, Weyerhaeuser's experience does not provide nearly as compelling evidence of the benefits of implementing S&OP as the first two cases we examined.

Company #4



Implementation Timeline: Whirlpool encountered a number of problems in their supply chain in 2000 as described by the “Supply Chain Turnaround” article published in Harvard Business Review by former executive Ruben Slone. These issues included “inadequate planning” so one of their first initiatives was rolling out S&OP in 2001 “to pull together the long-term and short-term” perspectives of marketing, sales, finance, and manufacturing.”

Results: After implementing their revised S&OP process Whirlpool shows dramatic improvement in their financial performance. In the three year period before the turnaround project, the company realized revenue growth ranging from 1.8% to -1.8%, while from 2002 on, revenues grew at least 8.3% annually.



This growth trend is not limited to revenues, with every measured metric improving their 5-year averages post-S&OP implementation. While variance and standard deviation across the annual numbers reported increased, it was largely due to the losses and negative ROA associated with the heavy one-time costs associated with implementing the various turnaround initiatives. When removing the first year (2002), average net income jumps from 256 million USD to 419 million USD.

	Whirlpool Averages	
	5-Years Prior	5-Years Post
Revenue (Millions)	\$ 10,024	\$ 13,762
Net Income (Millions)	\$ 209	\$ 256
Cash Flow (Millions)	\$ 307	\$ 335
Inventory Turnover	6.88	7.39
Return on Assets	2.8%	2.9%

Now, logically not all of this growth can be attributed to the single decision to implement S&OP. In the Harvard Business Review article on Whirlpool's "Supply Chain Turnaround" a number of other initiatives are designed to improve the company such as implementing new supply chain integration tools, increased customer focus, and improved talent management

(Slone). However, S&OP was a clear early win for that turnaround and enabled much of their other success.

Cross-Company Analysis

After reviewing each of the individual cases above it is clear that implementation of Sales and Operations Planning can provide a wide variety of benefits depending on the firm and the external business environment. Three of the four case studies revealed positive financial impact from S&OP in almost every one of the five metrics used. To more objectively compare these benefits the cases can be correlated by industry, with Newell-Rubbermaid and Heinz representing consumer packaged goods (CPG), and Weyerhaeuser and Whirlpool grouped as industrial firms. Please see Exhibit F in the Appendix for a detailed breakdown of all correlations.

Examining the revenues, we see that this is where the strongest correlations occur out of the entire data set. In our industrial grouping there is a strong negative correlation in revenues between Weyerhaeuser and Whirlpool. This is likely due to the emergent success of Whirlpool's supply chain turnaround and growth, while Weyerhaeuser stagnated and spun off many parts of their business. Also in the CPG industry Newell-Rubbermaid and Heinz's revenues have a semi-strong negative correlation at -0.55. This could be also due to a spin-off and some of the recession, when NWL dropped out of some lower-margin goods and Heinz picked up growth year-over-year even during the global recession in 2008.

Other areas of significance include medium positive correlations on inventory turnover over the ten year period between three of the companies (excluding Weyerhaeuser). This would indicate that S&OP has a positive effect at increasing turns. There is also an observable semi-strong (0.58) correlation between Heinz and Whirlpool on net income, where both companies

experienced significant growth. In terms of negative relationships, Heinz and Newell-Rubbermaid were semi-strong negatively correlated (<-0.5) in both revenues and free cash flow. This would imply that for all of Heinz's success in these areas, NWL struggled to achieve growth and actually declined in the middle of the ten-year period due again to the financial recession. The years 2008-2009 are an area that would be difficult to attribute change in many factors to S&OP alone.

After objectively reviewing the data above, the many small to strong positive correlations outweigh the negative outliers that largely were associated with Weyerhaeuser's decline. This leads me to conclude that S&OP has had a positive effect on these firm's realized financial results, both *ceteris paribus* and with market conditions factored in. The qualitative accounts from these firm's leadership and the shape of the trends throughout their adoption indicate high levels of success and show that S&OP is a tool with great potential for firms that can wield it well.

Appendices

Exhibit A: Financial Summary

Summary of Financial Results

	NWL				WHR				HNZ				Weyerhaeuser			
	5-Years Prior	5-Years Post	10-Year		5-Years Prior	5-Years Post	10-Year		5-Years Prior	5-Years Post	10-Year		5-Years Prior	5-Years Post	10-Year	
Revenue	Average	\$ 6,075	\$ 5,687	\$ 5,881	Average	\$ 10,024	\$ 13,762	\$ 11,893	Average	\$ 8,238	\$ 9,644	\$ 8,941	Average	\$ 19,383	\$ 9,815	\$ 14,599
	CAGR	-0.493%	0.242%	0.017%	CAGR	3.719%	10.417%	7.692%	CAGR	-1.682%	3.958%	1.753%	CAGR	8.673%	-20.434%	-8.545%
	Std. Dev.	\$ 406	\$ 114	\$ 329	Std. Dev.	\$ 790	\$ 2,707	\$ 2,583	Std. Dev.	\$ 441	\$ 783	\$ 904	Std. Dev.	\$ 3,081	\$ 5,378	\$ 6,185
Net Income	Average	\$ 281	\$ 511	\$ 396	Average	\$ 209	\$ 256	\$ 233	Average	\$ 684	\$ 837	\$ 761	Average	\$ 578	\$ 222	\$ 400
	CAGR	7.160%	-0.816%	7.426%	CAGR	-206.961%	-201.906%	N/A	CAGR	9.506%	7.212%	6.703%	CAGR	15.670%	24.011%	14.140%
	Std. Dev.	\$ 202	\$ 28	\$ 172	Std. Dev.	\$ 189	\$ 364	\$ 260	Std. Dev.	\$ 154	\$ 133	\$ 150	Std. Dev.	\$ 440	\$ 977	\$ 700
Cash Flow	Average	\$ 460	\$ 427	\$ 444	Average	\$ 307	\$ 335	\$ 321	Average	\$ 713	\$ 888	\$ 801	Average	\$ 848	\$ (255)	\$ 297
	CAGR	-3.934%	2.473%	-1.503%	CAGR	24.612%	-4.465%	3.525%	CAGR	57.479%	3.120%	26.344%	CAGR	21.359%	-6.921%	4.275%
	Std. Dev.	\$ 98	\$ 54	\$ 72	Std. Dev.	\$ 216	\$ 47	\$ 141	Std. Dev.	\$ 367	\$ 56	\$ 251	Std. Dev.	\$ 532	\$ 1,015	\$ 911
Inventory Turnover	Average	4.65	5.06	4.85	Average	6.88	7.39	7.14	Average	4.19	5.01	4.60	Average	8.95	8.09	8.52
	CAGR	-0.314%	0.040%	1.225%	CAGR	3.488%	0.335%	2.715%	CAGR	1.441%	2.176%	3.262%	CAGR	2.013%	5.331%	2.208%
	Std. Dev.	0.24	0.10	0.26	Std. Dev.	0.52	0.51	0.53	Std. Dev.	0.38	0.22	0.49	Std. Dev.	0.39	1.74	1.21
Return on Assets	Average	4.1%	5.3%	4.7%	Average	2.8%	2.9%	2.9%	Average	7.1%	8.1%	7.6%	Average	2.2%	0.9%	1.5%
	CAGR	2.437%	5.395%	4.469%	CAGR	-210.757%	-192.115%	N/A	CAGR	6.587%	6.613%	5.055%	CAGR	5.371%	40.346%	16.494%
	Std. Dev.	0.03051	0.02188	0.02451	Std. Dev.	0.02584	0.04897	0.03502	Std. Dev.	0.01492	0.01067	0.01256	Std. Dev.	0.01408	0.05778	0.03816

Exhibit B:

NWL Financial Metrics

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
NWL	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	\$ 5,717	\$ 6,201	\$ 6,407	\$ 6,471	\$ 5,578	\$ 5,658	\$ 5,865	\$ 5,580	\$ 5,607	\$ 5,727
Net Income	\$ 251	\$ 385	\$ 467	\$ (52)	\$ 355	\$ 536	\$ 483	\$ 491	\$ 531	\$ 514
Free Cash Flow	\$ 549	\$ 505	\$ 498	\$ 297	\$ 450	\$ 418	\$ 338	\$ 441	\$ 467	\$ 472
Inventory Turnover	4.5	5.0	4.6	4.7	4.4	5.1	5.2	4.9	5.0	5.1
Return on Assets	3.8%	6.0%	7.2%	-0.8%	4.3%	4.6%	2.0%	6.5%	7.7%	5.9%

Exhibit C:

Heinz Financial Metrics

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
HNZ	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	\$ 8,821	\$ 7,614	\$ 8,237	\$ 8,415	\$ 8,104	\$ 8,643	\$ 9,002	\$ 10,071	\$ 10,011	\$ 10,495
Net Income	\$ 478	\$ 834	\$ 566	\$ 788	\$ 753	\$ 646	\$ 786	\$ 845	\$ 996	\$ 915
Free Cash Flow	\$ 95	\$ 680	\$ 854	\$ 1,017	\$ 920	\$ 844	\$ 851	\$ 887	\$ 875	\$ 985
Inventory Turnover	3.9	3.7	4.5	4.6	4.2	4.8	4.9	5.0	4.9	5.4
Return on Assets	5.4%	8.6%	5.8%	8.4%	7.4%	6.4%	8.0%	8.2%	9.1%	8.8%

Exhibit D:

Weyerhaeuser Financial Metrics

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Weyerhaeuser	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	\$ 14,545	\$ 18,521	\$ 19,873	\$ 21,931	\$ 22,046	\$ 18,671	\$ 10,824	\$ 8,100	\$ 5,528	\$ 5,954
Net Income	\$ 354	\$ 241	\$ 277	\$ 1,283	\$ 733	\$ 453	\$ 790	\$ (1,176)	\$ (287)	\$ 1,329
Free Cash Flow	\$ 302	\$ 455	\$ 1,043	\$ 1,646	\$ 795	\$ 657	\$ (81)	\$ (1,907)	\$ (401)	\$ 459
Inventory Turnover	8.4	9.4	8.8	8.9	9.3	8.1	5.9	7.1	8.9	10.5
Return on Assets	1.9%	1.0%	1.0%	4.4%	2.5%	1.6%	3.1%	-5.8%	-3.4%	8.9%

Exhibit E:

Whirlpool Financial Metrics

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
WHR	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	\$ 8,617	\$ 10,323	\$ 10,511	\$ 10,325	\$ 10,343	\$ 11,016	\$ 12,176	\$ 13,220	\$ 14,317	\$ 18,080
Net Income	\$ (15)	\$ 325	\$ 347	\$ 367	\$ 21	\$ (394)	\$ 414	\$ 406	\$ 422	\$ 433
Free Cash Flow	\$ 215	\$ 240	\$ 364	\$ 70	\$ 646	\$ 382	\$ 321	\$ 283	\$ 387	\$ 304
Inventory Turnover	6.0	6.9	7.3	7.2	7.1	7.7	7.8	6.8	6.9	7.8
Return on Assets	-0.2%	4.0%	4.7%	5.4%	0.3%	-5.8%	5.9%	5.2%	5.1%	3.8%

Exhibit F: Correlation Coefficients

Correlation				
<i>Revenue</i>	<i>NWL</i>	<i>WHR</i>	<i>HNZ</i>	<i>Weyerhaeuser</i>
NWL	1.00			
WHR	-0.35	1.00		
HNZ	-0.55	0.84	1.00	
Weyerhaeuser	0.54	-0.78	-0.91	1.00

<i>Net Income</i>	<i>NWL</i>	<i>WHR</i>	<i>HNZ</i>	<i>Weyerhaeuser</i>
NWL	1.00			
WHR	-0.03	1.00		
HNZ	0.23	0.58	1.00	
Weyerhaeuser	-0.41	-0.08	-0.10	1.00

<i>Free Cash Flow</i>	<i>NWL</i>	<i>WHR</i>	<i>HNZ</i>	<i>Weyerhaeuser</i>
NWL	1.00			
WHR	0.24	1.00		
HNZ	-0.60	0.21	1.00	
Weyerhaeuser	-0.18	-0.08	0.07	1.00

<i>Inventory Turnover</i>	<i>NWL</i>	<i>WHR</i>	<i>HNZ</i>	<i>Weyerhaeuser</i>
NWL	1.00			
WHR	0.55	1.00		
HNZ	0.56	0.65	1.00	
Weyerhaeuser	-0.31	-0.04	-0.14	1.00

<i>Return on Assets</i>	<i>NWL</i>	<i>WHR</i>	<i>HNZ</i>	<i>Weyerhaeuser</i>
NWL	1.00			
WHR	0.02	1.00		
HNZ	0.03	0.57	1.00	
Weyerhaeuser	-0.45	-0.12	-0.03	1.00

Correlation Key

Strong Positive
Strong Negative
Medium Pos/Neg

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